



STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

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July 9, 1982

Mr. Ron DeHollander
Environmental Coordinator
Union Carbide Corporation
P. O. Box 1029
Grand Junction, CO 81502

ACT/037/026

Dear Mr. DeHollander:

After reviewing the results of the soil analyses that you submitted, the Division staff have made the following recommendations for setting up revegetation test plots:

Soils Treatment Recommendations

Common recommendations for all mine sites

- 1) Data from all operations indicate a phosphorous deficiency. Phosphorous fertilization of 40 lbs/Ac as P_2O_5 is recommended.
- 2) Due to the lack of soil and attendant lack of organic matter, the application of domestic sewage sludge at a rate of between three and four hundred lbs/Ac would be a great benefit. This would also increase cation exchange capacity, moisture retention properties, aid soil structure and provide all necessary nutrients with the exception of potassium.
- 3) It would be best, in terms of logistics, to bring materials in to a central location. Flexibility in terms of adequate space, isolation from operational areas, monitoring and economics would result.

Recommendations on a per mine basis

La Sal

- . Addition of organic matter - possibly sewage sludge as in (2) above.

Beaver shaft

- . Due to the very high sodium content an application of gypsum ($CaSO_4$) is recommended. Application of 1-1 1/2 ton/Ac broadcast (as fine a particle size as possible) is recommended.

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Snowball

- . The application of potassium at 20 lbs/Ac as K₂O is advised.
- . Since Magnesium is low, the application of Magnesium ammonium phosphate at 100 lbs/Ac is recommended. This will also provide a slowly available nitrogen source.

Recommended Species for Revegetation Trials

Grasses

Agropyron dasystachum (Thickspike wheatgrass)
Oryzopsis hymenoides (Indian rice grass)
Stipa comata (Needle-and-thread grass)
Elymus junceus (Russian wildrye)
Agropyron cristatum (crested wheatgrass)

Forbs

Artemesia ludoviciana (Louisiana sagebrush)
Melilotus officinale (yellow sweetclover)

Shrubs

Atriplex canescens (Four-wing saltbush)
Atriplex confertifolia (Shadscale)
Ceratoides lanata (Winterfat)
Chrysothamnus viscidiflorus (Rabbitbrush)

The ideal situation for setting up test plots would be to get samples of waste rock from all three sites and place them so that all the plots would be together. One vegetation planting could be made with the individual species planted in rows to test for their survival in the rock media. Another planting could be made with 4 - 5 species broadcast seeded together at 15 - 20 lbs/acre to test for competitive interactions between the seedings. Seed should be raked into the surface of the rock and possibly mulched with hay if the area is very windy. The ideal time for seedling plantings is in the fall (October).

After looking over these recommendations, please contact the Division as to your specific plans for setting up test plots. These should include location, size, and number of plots, along with specific soil treatment and vegetation seeding plans. Please feel free to contact Division staff members for further assistance or clarification.

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Sincerely,

Susan C. Linner
SUSAN C. LINNER
RECLAMATION BIOLOGIST

cc: Claude Thormalen, Union Carbide
Thomas Portle, DOGM
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SCL/dc